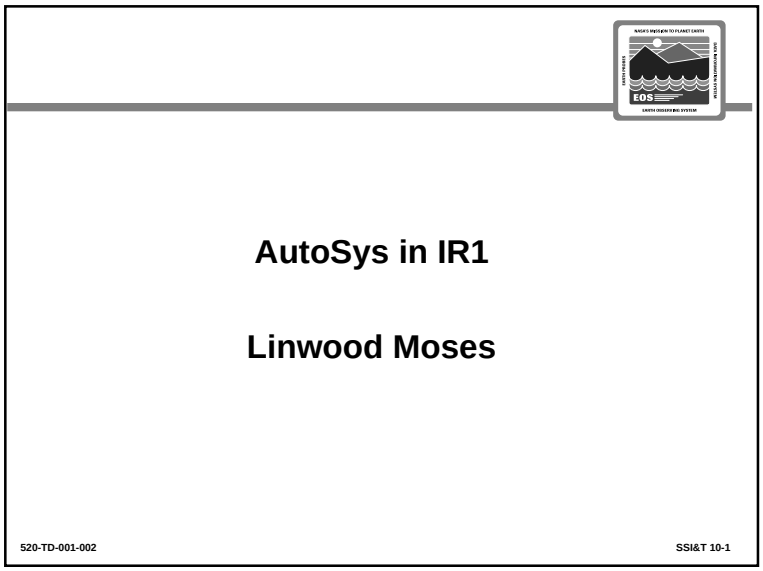
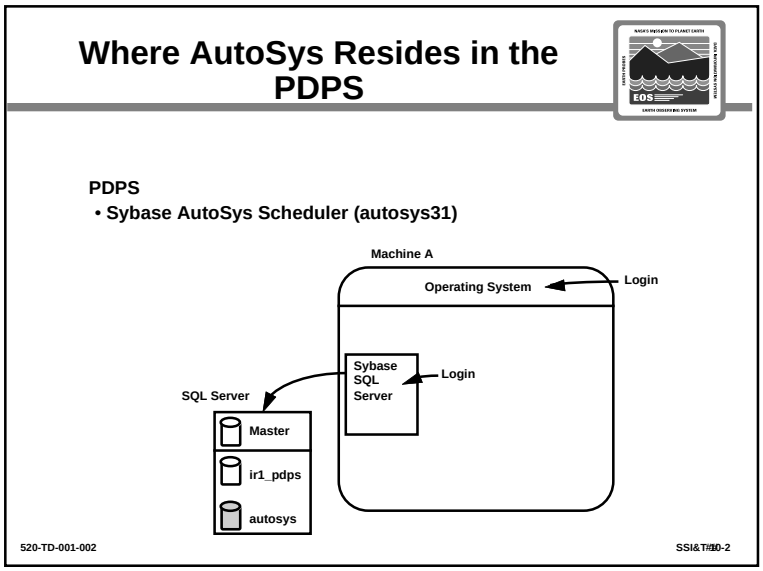


Discussion Topics

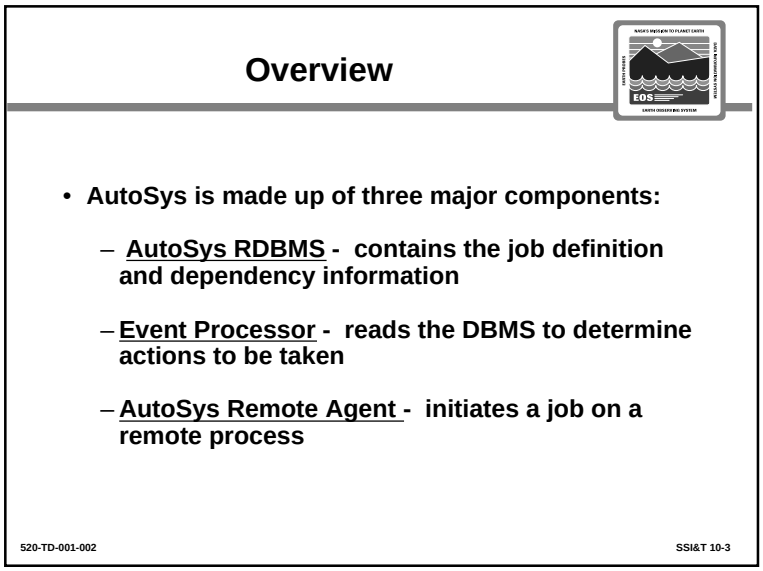
- Objectives of this section:
  - Describe the workings of the AutoSys and its incorporation into the PDPS
  - Perform AutoSys operating functions
  - Perform AutoSys maintenance and troubleshooting functions



Discussion Topics

The Planning and Data Processing Subsystem utilizes two Sybase databases which reside on the Database Server computer. One database is used by the AutoSys scheduler product; the other database is the PGE database used by custom applications. Both databases are managed by a single Sybase SQL Server. A Sybase SQL Server is a set of one or more cooperating processes that manage one or more databases and provide database access to multiple users.

The Sybase name for the AutoSys database is **autosys31**; the name of the PGE database is **ir1_pdps**.

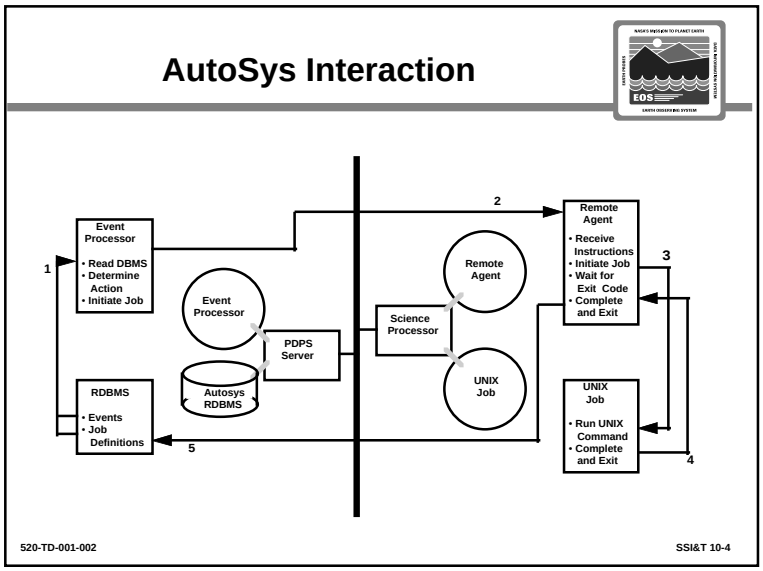


Discussion Topics

AutoSys is used to monitor and schedule the execution of one or more Science Software executables (also called Product Generation Executables or PGEs) in support of the integration and test of science software. AutoSys has three primary components:

- The Sybase **AutoSys RDBMS** is the data repository for all system events, and for all job, monitor, and report definitions. The database is used to store PGE registration information, data processing request information and the Sybase server. It needs to be up and running at all times in order for the PDPS to execute.
- The **Event Processor** is a UNIX demon process that schedules and starts jobs based on information contained in the AutoSys RDBMS. It also needs to be up and running at all times in order for the PDPS to function properly.
- The **Remote Agent** is a temporary process started by the Event Processor in order to perform a specific task on a remote machine. The Remote Agent is executed by the request of the Event Processor based on the machine name information stored in the AutoSys RDBMS.

Reference: *AutoSys User Manual, 3.1, AutoSystems Corp., 1994, pgs. 1-3 &1-4*



Discussion Topics

AutoSys Interaction

1. The Event Processor reads a new event from the RDBMS when its start time has arrived. It reads the job definition from the database and determines what action to take.

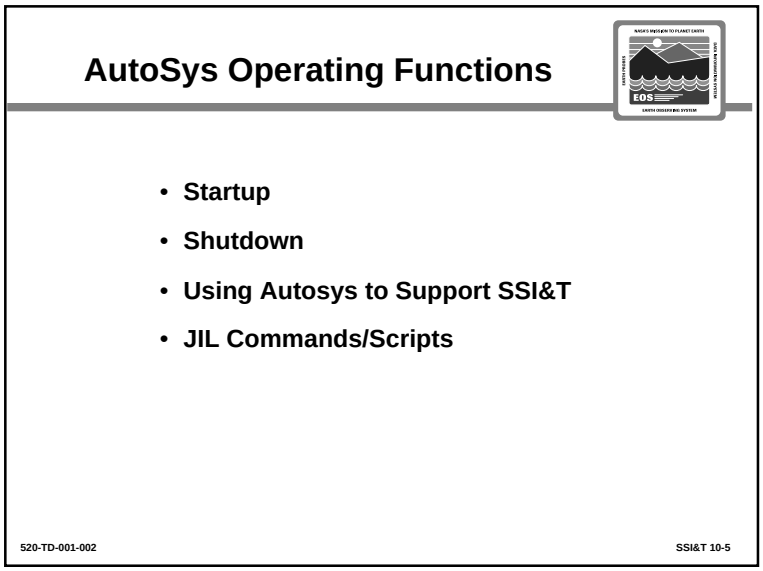
2. The Event Processor sends instructions to the Remote Agent at the Science Processor. As soon as the Remote Agent receives the instructions, the connection between the two processes is dropped. The Remote Agent will continue to execute the job, even if the Event Processor goes down.

3. The Remote Agent performs resource checks, such as ensuring that the minimum number of processes is available. It then initiates a UNIX command job.

4. The UNIX command completes and exits. The Remote Agent receives the exit code.

5. The Remote Agent sends the event completion data (exit code, status, etc.) to the RDBMS. If the database is unavailable, the Remote Agent goes into a wait/resend cycle until the message is delivered.

Reference: *AutoSys User Manual, 3.1, AutoSystems Corp., 1994, pgs. 1-5 &1-6*

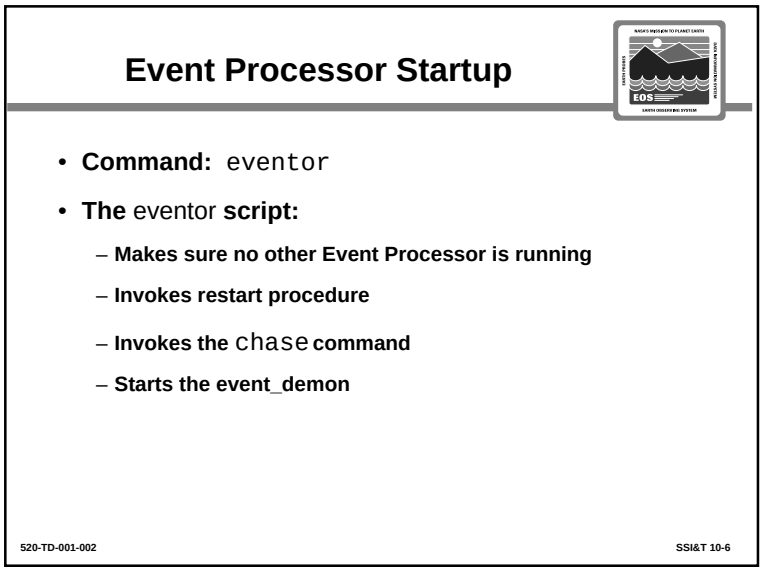


Discussion Topics

The rest of this lesson will cover the following AutoSys operations:

- Startup
- Shutdown
- AutoSys in support of SSI&T
- Job Information Language (JIL) commands/scripts

Troubleshooting will also be covered



Discussion Topics

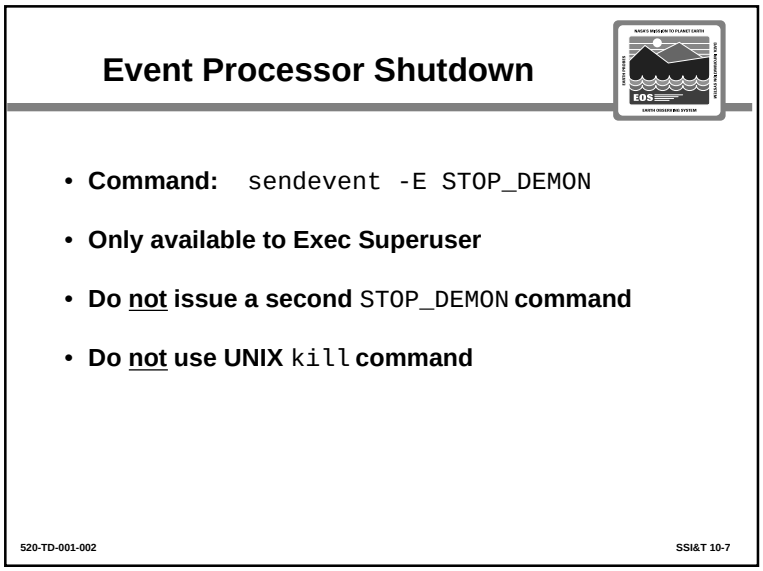
AutoSys startup occurs automatically during the bootup of the SSI&T Server. During the boot process, the “eventor” command is issued, which invokes the AutoSys eventor script.

The eventor script:

- Makes sure that no other Event Processor is running on that machine.
- Invokes a restart procedure that looks for any events that are hung in a “processing” state. Usually there will only be a hung event if the Event Processor was stopped while it was processing an event. If there is a hung event, it will be re-queued for processing.
- Invokes the “**chase” command**, which **inspects the RDBMS to determine what Autosys thinks is running**. It then **checks each machine to confirm that those jobs are in fact running**. “chase” sends an alarm for any missing jobs and, if possible, generates a restart event for any missing jobs.
- Starts the executable event_demon.

The “eventor” command can be issued from the UNIX prompt if there is a need to startup AutoSys independent from the normal boot process. Chapter 2 of the AutoSys User Manual contains additional details on starting and monitoring the Event Processor.

Reference: *AutoSys User Manual, 3.1, AutoSystems Corp., 1994, pgs. 2-3 &2-4*



Discussion Topics

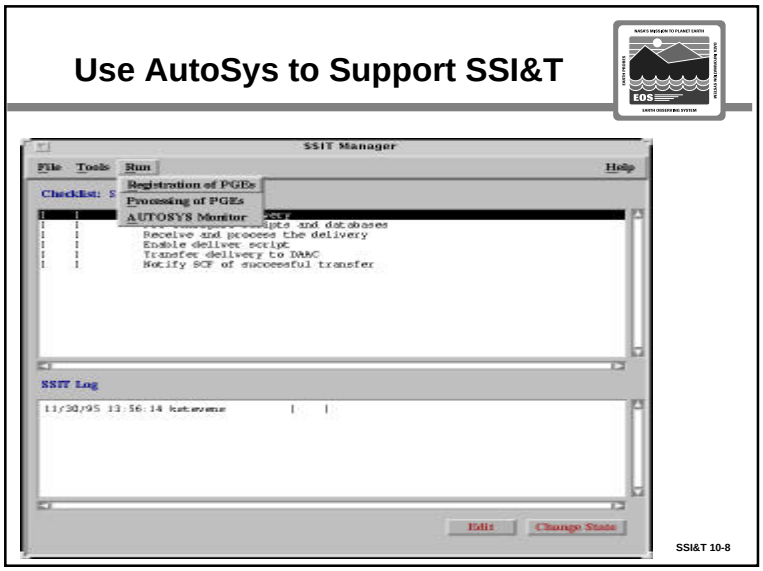
- You can stop the Event Processor safely at any time by issuing the command

  % sendevent -E STOP_DEMON

  at the UNIX prompt.

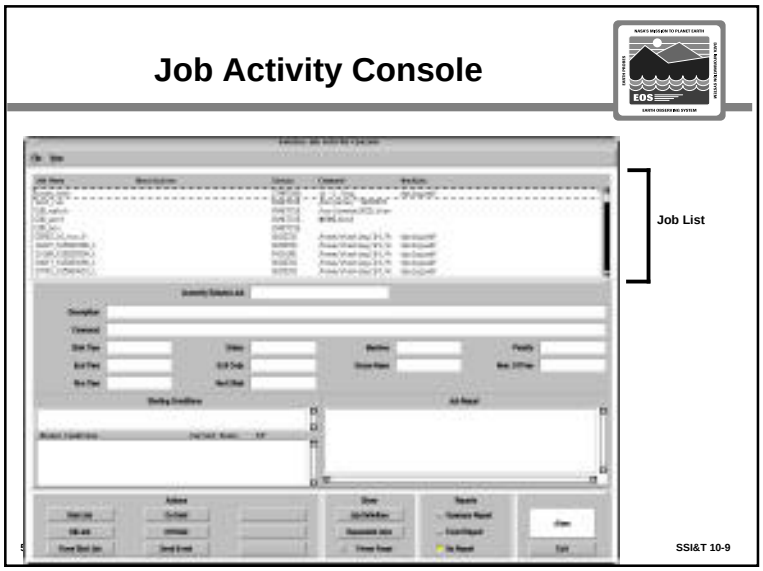
- Only the Exec Superuser (assigned during system installation or execution of the autosecure command) can issue this command.
- Once the command is issued, the STOP_DEMON is sent to the RDBMS, where it is read by the Event Processor. The Event Processor then begins an orderly shutdown. Currently running jobs are not affected. They run to completion and then send their completion status to the RDBMS. Events triggered by the completion of these jobs will not execute until the Event Processor is running again.
- **There may be some delay between sending the command and the completion of the shutdown, but do not issue a second STOP_DEMON command**. If you do, the Event Processor will read it from the RDBMS during the next startup, and will shut back down.
- Also, **never use the UNIX "kill" command to shut down the Event Processor**. This could shut down the processor in the middle of processing an event, **resulting in a hung event when the Event Processor is started up again**.

Reference: *AutoSys User Manual, 3.1, AutoSystems Corp., 1994, pgs. 2-6 &2-7*



Discussion Topics

- SSI&T Startup: The SSI&T Manager GUI does not automatically appear at system startup. It is started by using the startup script *DpAtMgr startup*.
- The AutoSys Scheduler is obtained by selecting AUTOSYS Monitor under the Run option on the SSI&T Main Menu.
- The AutoSys Scheduler is used to monitor and schedule the execution of one or more Science Software executables in support of the integration and test of science software.



Discussion Topics

The Job Activity Console is divided into three regions: Job List, Currently Selected Job, and Action Area.

- **Job List**. This region displays a list of all the jobs that are defined to AutoSys, subject to the job selection criteria currently in effect. Each entry in the Job List contains the most pertinent information about a single job:
  - Job name
  - Description
  - Current Status
  - Command to be executed (or currently executing command)
  - Machine on which the job is to be run (or currently running)
- If the job is a **File Watcher Job**, the file to watch for appears in the “Command” column; if the job is a Box Job, the “Command” column is left empty. Together, all the entries in the Job List provide a handy snapshot of the entire system, across multiple machines, and at any time
- You can select any job in the Job List by single-clicking on the line on which the job’s information displays. When you do this, the selected job becomes the “currently selected” job, and the window displays more detailed information about the job in the Currently Selected Job region.
- The Job List region has its own scroll bar along the right side to scroll down extensive lists. Using the X resources file, you can configure the relative sizes of the columns in the Job List. You can also specify the length of each field, as well as the spacing between fields.

Reference: *AutoSys User Manual, 3.1, AutoSystems Corp., 1994, pgs. 9-3 &9-4*

Job Activity Console (cont'd)

SSI&T 10-10

Discussion Topics

- **Currently Selected Job**. Displays more detailed information about the currently selected job. All the information that changes with each execution of the job, such as start time and exit code is displayed in this region (it reflects the most recent data about the execution of the job.
- If the currently select job is a File Watcher Job, the "Command" field displays the file for which the job is to watch; if the currently selected job is a Box Job, the "Command" field is left empty.

Reference: *AutoSys User Manual, 3.1, AutoSystems Corp., 1994, pgs. 9-3 - 9-5*